

PROJECT NEED AND OBJECTIVES

This chapter presents the project objectives as well as the need for the project. Need is described using the historical demand conformance requirements as a foundation. The role of reliability in the AFC process is explained. The need for and value of the El Segundo Power Redevelopment Project (ESPR) completes this picture. The project's objectives are also presented, especially the extent to which ESPR is focused on meeting the need for additional generation and increasing efficiency in the Los Angeles Basin and Southern California.

2.1 NEED CONFORMANCE AND RELIABILITY

The evaluation of conformance with need has evolved steadily over recent years as California has moved to restructure electricity markets and redefine the roles of producers, purchasers, and consumers of power. In the past, the siting applicant submitted, as a component of its Application for Certification, a statement of need showing that its proposed project conformed in the past with the most recently adopted Electricity Report, which was to contain an economic analysis and integrated assessment of need for new resource additions. The Electricity Report and Integrated Assessment of Need (IAN) provided the means of implementing statewide planning of new generation facilities.

More recently, electricity deregulation has complicated State involvement in resource planning and ensuring electricity reliability. Assembly Bill 1890 (AB-1890) and Senate Bill 110 (SB-110) effectuated this change. Recently, AB-970 created a set of expedited processes designed to counter the planning and generation gap that arose from the AB-1890 and SB-110 confusion. ESPR is a project responsive to the urgent and critical need for reliable electricity.

2.1.1 Historical Overview of Need Conformance and Reliability

As explained below, California currently faces an electricity crisis. The CEC, tasked with responding to the critical need for more electrical power in California, must navigate its decision-making process through a maze of regulations created by a sequence of bills emanating from the State Legislature.

2.1.1.1 Warren Alquist Act

The Warren Alquist Act (Warren-Alquist) was created in the 1970s as a mechanism to test the hypothesis that electricity growth was increasing at over 7 percent a year (doubling the number of power plants every ten years). Warren-Alquist provided independent electricity

forecasts, set and accounted for energy conservation standards, and assisted in the development of more environmentally “benign” sources of electricity. The Legislature in that era was dealing with vertically integrated monopoly electricity providers. At the time, Investor Owned Utility (IOU) forecasting held that California needed to double its number of power plants every ten years in order to meet projected demand, and the IOUs were intending to deploy significant numbers of nuclear power plants to meet that demand. This provoked a public policy evaluation in the Legislature, wherein the Legislature concluded that the IOU projections were unduly inflated. Accordingly, the Legislature established the Commission as the State mechanism to (1) independently validate IOU projections of California’s energy needs, and (2) site only those additional power plants which conformed with the need assessment. In this regard, the Commission was intended to serve as the environmental steward that would help to ensure that California did not over-commit its environmental resources to power plants, a reason why the Warren Alquist Act was placed within the Public Resources Code.

As California has moved from a monopolistic policy to a policy of trying to develop markets in electricity providership, California’s policy emphasis has flipped from the 1970s idea of constraining a monopolistic trend to overbuild generation to the 1990s idea of promoting as much privately funded generation development as is feasible. The Legislature has now expressed the desire to create conditions that would introduce a multiplicity of market participants, for the express policy purpose of promoting electricity commodity price competition. SB 110, enacted in September 1999, modified the siting process to remove the Commission's ability to deny a project on the specific ground that the facility is not needed.

2.1.1.2 Senate Bill 110

Senate Bill 110 amended Public Resources Code §25523 which pertained to the Commission’s written decision on an Application for Certification. SB 110 expressly removed the requirement that the decision contain an express finding that the project conforms to the Integrated Assessment of Need (IAN). SB 110 also removed IAN and generation facility planning aspects from the Commission’s biennial report. In addition, a declaration of Legislative intent set forth in SB 110 notes that, before restructuring, it was necessary for the Commission to engage in planning and to approve only those plants which were needed, because ratepayers paid for the facilities. The Legislative declaration indicates that this determination is no longer appropriate, because power plant owners are at risk to cover their own investments.

Thus SB 110 reshaped the Commission’s role and reversed the focus of the government’s role. Instead of setting a ceiling on the overall level of “new resource additions” (by validating IOU forecasts and articulating maximum need in an IAN), the Commission is now charged, among other things, with determining the minimum amount and location of new

generation needed to promote California's statewide interest in reliable electricity. As stated in §1 of SB 110:

- “Before the California electricity industry was restructured, the regulated cost recovery framework for power plants justified requiring the commission to determine the need for new generation, and site only power plants for which need was established. Now that power plant owners are at risk to recover their investments, it is no longer appropriate to make this determination.”
- “It is necessary that California both protect environmental quality and site new power plants *to ensure electricity reliability*, improve the environmental performance of the current electricity industry and reduce consumer costs.” (*emphasis added*)
- “The success of California's restructured electricity industry depends upon the willingness of private capital to invest in new power plants. Therefore, it is necessary to modify the need for determination requirements of the state's power plant siting and licensing process to reflect the economics of the restructured electricity industry and ensure the timely construction of new electricity generation capacity.”

The heart of this Legislative declaration of SB 110 is the re-articulation of resource policy with respect to California's statewide interest in the siting process in the restructured era. Thus, the siting process is intended to:

- protect environmental quality and;
- site new power plants to:
 - (i) insure electricity reliability;
 - (ii) improve environmental performance of the current electricity industry; and
 - (iii) reduce consumer costs.

The concept of electricity reliability is elaborated upon in Public Resources Code §25001, contained within the Warren Alquist Act as originally enacted and which was unaltered by SB 110:

The Legislature hereby finds and declares that electrical energy is essential to the health, safety and welfare of the people of this state and to the state economy, and *that it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of the public health and safety, for promotion of the general welfare, and for environmental quality protection.* [emphasis added]

2.1.2 Contemporary Need Conformance and Electric System Reliability

Prior to SB 110, the California Legislature unanimously passed a bill to deregulate the State's electric utility industry. Assembly Bill 1890 in part ratified and in part modified the California Public Utilities Commission (CPUC) plan to create a wholesale electricity market and independent system operator to manage the electricity transmission grid. AB 1890 reaffirmed the State's concern in electricity reliability, noting that "[r]eliable electric service is of utmost importance to the safety, health and welfare of the state's citizenry and economy" and further stating that "[it] is important that sufficient supplies of electric generation will be available to maintain the reliable service to the citizens and businesses of the state". AB 1890 also created the California Independent System Operator (ISO) and the California Power Exchange (PX), which commenced operations on March 31, 1998.

Environmental protection and reliability are pre-existing siting process objectives dating back to the original enactment of the Warren Alquist Act. With the passage of SB 110, intended to address the post-AB 1980 era, consumer cost reduction was added to the mix. These three-fold objectives: electricity reliability, environmental protection, and consumer cost reduction comprise the statewide interests which supplant "integrated assessment of need" in the restructured era. This fact is reiterated by SB 110's insertion of the three purposes within §25525, the "override" provision:

"The commission shall not certify any facility contained in the application when it finds, pursuant to subdivision (b) of §25523, that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity. *In making the determination, the commission shall consider the entire record of the proceeding, including, but not limited to, the impacts of the facility on the environment, consumer benefits, and electric system reliability.* In no event shall the commission make any finding in conflict with applicable federal law or regulation. The basis for these findings shall be reduced to writing and submitted as part of the record pursuant to §25523." (*emphasis added*)

2.1.2.1 Reliability

2.1.2.1.1 Commission Role. Reliability includes the concept of systems-wide (i.e. statewide, regional, and/or locational) reliability in addition to the simple issue of whether a given generation facility can, in fact, connect to the grid. The Commission has historically interpreted and exercised its reliability functions with this understanding. Moreover, systems reliability is inextricably linked to the concept of connecting multiple generation facilities to the transmission system, due, for example, to the undeniable fact that the dynamics of AC

power require consideration as to where generation is placed, in order to move power down the line. Moreover, even on a case-by-case basis, connection of an individual plant can cause systemwide impact, for example, by promoting congestion or other detrimental system impact, thus increasing the potential of reducing, rather than enhancing reliable power for the region.

2.1.2.1.2 ISO Role. AB 1890 gave certain responsibilities related to transmission for electricity reliability to the ISO. For example, Public Utilities Code §334, added by §10 of AB 1890, explains that a component of electricity reliability relates to transmission connections between electric utilities. §334 notes that (i) such connections allow the electric utilities “to share generation resources and reduce the number of power plants necessary to maintain a reliable system” and (ii) “connections between utilities also create exposure to events that can cause widespread and extended transmission and service outages that reach far beyond the originating utility service area.” §334 then notes that California’s utilities voluntarily adhere to Western Systems Coordinating Counsel reliability standards. After presenting the context of utility to utility transmission interconnection, §334 explains that:

“The proposed restructuring of the electricity industry would transfer responsibility for ensuring short-and long-term reliability away from electric utilities and regulatory bodies to the Independent System Operator and various market-based mechanisms. The Legislature has an interest in ensuring that the change in the locus of responsibility for reliability does not expose California citizens to undue economic risk in connection with system reliability.”

To the extent that AB 1890 is construed to have supplanted jurisdictional areas of the CPUC and (by extension) the Commission which find their basis in the State Constitution, that interpretation may be subject to challenge for invalidity on the grounds that the statutory provision is invalid because it intrudes into an area outlined by the State Constitution. In this regard, the California Supreme Court has indicated that the Commission’s power plant siting process is intertwined with the State Constitutional provisions of the CPUC.

2.1.3 Need

While the transition to a competitive market in electricity commodity generation has been marked by various uncertainties, one trend has clearly emerged. The need for additional generation sources to maintain California electricity reliability has been underscored.

2.1.3.1 California Energy Commission Articulation of Need

By the end of 1998, the Commission was attempting to analyze the level of new resource additions needed to help California transition into an electricity commodity market. The

Commission's ER 96 Standing Committee considered amendment of the 1996 Electricity Report, ER 96, to adapt the IAN to a market environment. (The Commission's efforts ultimately resulted in adoption of an ER 96 Addendum in 1999.) In its analyses on the subject, the Standing Committee noted that a *two-to-one ratio* of new generation sources would likely be necessary to sustain a market. For example, in a proposal circulated for a January 6, 1999 workshop, the Commission staff noted that:

"The ER 96 IAN used capacity accounting for "physical need," i.e. an assessment of the minimum amount of capacity needed to keep the California system operational and reliable assuming that all power plants are dispatched at least cost. *Yet, as the new market has begun to operate, it now appears that generation adequate to meet the new market's physical demand is not enough to provide robust competition.* In addition, bids have been asked and provided for differentiated services (e.g. kwh, ancillary services, replacement reserves.)" ...

"How much more capacity might be needed so that prices would reflect competitive pressures, not market power? Although there has not been enough time for a well-developed statistically-valid quantification of what constitutes "bid sufficiency," ISO market power experts have developed *a preliminary estimate that ancillary services bid sufficiently might begin to occur at 140 percent of demand in each hour and would probably be achieved by 200 percent of demand.* (CEC, Staff Report, January 6, 1999)"

The California Energy Demand 2000-2010 report summarizes the CEC's retail electricity consumption forecast for California through the year 2010. It reports that during the 1980s electricity consumption in California grew annually at 3.2 percent and from 1990-1998 it grew 0.9 percent. The decline in consumption in the 1990s was due to a severe economic recession in the early 1990s and is reflected in Southern California Edison's (SCE) and Los Angeles Department of Water and Power's LADWP) growth rates. Electricity consumption in the short-term (1998-2004) is expected to grow 2.3 percent and in the long-term (1998-2010) is expected to grow at 2.0 percent. The forecast assumes steady strong economic growth, which translates into steady electric consumption growth. These growth rates are higher than in the CEC's 1998 Baseline Energy Outlook, which only makes the outlook for generation meeting demand more slim.

Peak demand is important in evaluating system reliability, determining congestion points on the grid, and identifying potential supply needs. Historically (1990-1999), California peak electricity demand grew 1.5 percent annually. Peak demand is expected to grow at a slightly higher rate of 1.8 percent in the short-term (1999-2004), and 1.7 percent in the long-term (1999-2010). These rates are also higher than the CEC's 1998 Baseline Energy Outlook forecast.

Peak demand forecast in the North of Path 15 congestion zone of the ISO is expected to grow 1.3 percent in the short-term (1999-2004) and 1.6 percent in the long-term (1999-2010). Growth in the South of Path 15 congestion zone should increase even more, 2.4 percent in the short-term and 2.1 percent in the long-term.

2.1.3.2 ISO Articulation of Need

ISO has seen load increase by seven percent from June-July 1999 to June-July 2000. Because of historical reasons related to both the failure to conduct new forecasts and power plant deployment delays associated with awaiting restructuring, no major new power projects came on line to help supply the higher loads in 2000. The FERC, CPUC, CEC, Governor, Attorney General, PX, ISO, utilities, and ratepayer advocate groups all agree that lack of generation and high demand played a major part in what has caused major turmoil in the electricity restructuring market in California.

The ISO-issued "Report on California Energy Market Issues and Performance: May-June, 2000, Special Report, prepared by the Department of Market Analysis, August 10, 2000" found that high prices during May and June were the result of the combination of three factors: unusually high demand for electricity region-wide due to high temperatures and recent economic growth; gas prices doubling over the past year; and no significant new supply of generation over the last few years. The combination of very tight supply and increased demand conditions created absolute shortages of supply as well as the opportunity to exercise market power during many hours, which in turn, drove wholesale prices well above levels that would have resulted in a competitive market. The DMA recommended accelerating the permitting and siting of generation and transmission projects, especially those that would not compromise the need for adequate environmental review.

The ISO's Market Surveillance Committee (MSC) is an independent advisory group of industry experts that can suggest changes in rules and protocols or recommend sanctions or penalties directly to the ISO Governing Board when they observe abnormalities in the market. They conduct monthly meetings. In its October 13, 2000 monthly meeting, the ISO's MSC concluded that conditions affecting electricity market performance in the Summer of 2000 were a low supply of generation caused by a lack of new generation for the last 10 years, numerous outages of generation and transmission, a low supply of generation at higher costs due to increased gas prices, reduced hydro generation, and imports. Other conditions affecting the market were high load growth and extensive regulatory constraints such as lack of forward contracts and hedging, lifting of the rate freeze in San Diego, and lack of price responsive load.

The ISO was desperate for power in 2000 and distributed a request for proposals for 3,000 MW of summer peaking power for 2001. The ISO received proposals totaling 3,600. On October 4, 2000 the Cal ISO board authorized staff to pursue bids totaling only 2,045 MW at a cost of up to \$255 million over the next three years. Most of the proposed peaking plants are in PG&E's service territory.

2.1.3.3 Federal Energy Regulatory Commission Articulation of Need

On August 23, 2000 FERC issued an order initiating hearing proceedings under Section 206 of the Federal Power Act to address factors affecting bulk power markets and wholesale energy prices in California and directed its Staff to issue a fact finding investigation on the matter. As a result, FERC has further impacted electricity markets California by issuing its Order Proposing Remedies for California Wholesale Electric Markets (Docket No. EL00-95-000) issued November 1, 2000. FERC findings conclude that "the electric market structure and market rules for wholesale sales of electric energy in California are seriously flawed and these structures and rules, in conjunction with an imbalance of supply and demand in California, have caused, and continue to have the potential to cause, unjust and unreasonable rates for short-term energy (Day-Ahead, Day-of, Ancillary Services and real-time energy sales) under certain conditions." Therefore, the FERC proposed various remedies to change the electricity structure and rules and recognized that in order to resolve the electric restructuring market problems, "CPUC and other agencies must address the following: delays in siting additions of generation and transmission capacity; implementation of additional demand response programs; and elimination of impediments on Load Serving Entities pursuing power supplies on a forward basis."

2.1.3.4 CPUC and Electricity Oversight Board (EOB) Articulation of Need

On August 3, 2000 the CPUC opened an investigation into the functioning of the wholesale electric market and the associated impact on retail rates in the retail electric service area of SDG&E (I.00-08-002). Commissioner Carl Wood indicated that a combination of heat waves across the West, a drop in reserves, and significantly increased demand have accompanied much higher wholesale energy costs in the forward and real time energy markets. Comments to the investigation varied. Investor owned utilities blamed generators for creating high prices in the wholesale electric market. IEP blamed the lack of supply and increased demand. The PX attributed extreme, sustained high temperatures across the West, low hydro levels in the Pacific Northwest, increasing natural gas prices, increased environmental costs, and increased load in the absence of construction of new generation to price increases. The ISO's Department of Market Analysis determined that market power was largely confined to high load periods when there were limited supplies to meet total demand. They did not believe that limited supply conditions resulted from the competitive market structure. Rather, they believed these conditions were caused primarily by unexpectedly strong load growth coupled

with a delay in resource development during the years when restructuring was under consideration and the rules of the game were being defined. Therefore the ISO argued for a focussed effort to expedite the development of additional resources.

In response to blackouts in San Francisco and retail price escalations in San Diego, in a letter dated June 15, 2000, Governor Gray Davis directed the CPUC and the EOB to investigate the circumstances behind generation maintenance and transmission problems and its related impact on electricity prices. As required, the CPUC and EOB issued a report to Governor Gray Davis August 2, 2000. In summary, the report states that California's major electricity supply and pricing problems have been caused by policies and procedures adopted over the last decade. This summer California experienced both electricity price volatility and supply and delivery system instability. Hot weather, aging power plant and transmission infrastructure and dysfunctional bidding behavior in the wholesale power markets increased electricity prices and even created blackouts in the Bay Area. This report suggests that policymakers need to determine adequate electricity capacity quantities and to streamline plant siting and construction while meeting environmental requirements.

2.1.3.5 Regional Need

ESPR counters unfavorable conditions both statewide and by region. ESPR will replace ESGS Units 1 and 2 and utilize the same location to produce more power more efficiently. The ESGS units are located in the Los Angeles Basin, more specifically, the western Los Angeles Basin area. Need for generation in this region is reflected in the ISO's 1998, 2000 and 2001-2003 Reliability Must-Run (RMR) Studies, which identify the LA Basin and Western LA Basin as having local reliability problems. Additionally, to date all new power plants recently sited or proposed lie outside of the Los Angeles Basin, with the exception of Nueva Azalea (550MW), and Huntington Beach (450MW). Nearby power plant projects include those in Kern and San Bernardino counties. These other plants, however, rely upon transmission to deliver power into the western Los Angeles Basin.

2.2 PROJECT OBJECTIVES

Applicant's business strategy involves the purchase and re-powering of existing but antiquated generating facilities. The El Segundo Power Redevelopment Project, an example of this strategy, has the following objectives that address the need identified above:

- The production of cost-effective electricity to compete in California's deregulated electricity markets;
- To improve the overall environmental performance and reliability of the electrical generating sector in Southern California;

- To produce electricity with minimal environmental impacts;
- To alleviate the consequences of today's capacity shortage in Southern California;
- To assist in meeting the projected demand growth in Los Angeles county;

2.3 ESPR QUALITIES

ESPR not only serves to meet the call for additional generation sources but does so in a very low-impact, high efficiency manner. The high priced wholesale electricity market and the need for reliable power referenced above highlight the need for increased generation resource additions to meet anticipated load growth and capacity/reliability concerns in Los Angeles County, California. ESPR meets these needs, and accordingly, furthers the Commission's obligation to ensure that a reliable supply of electrical energy is maintained.

ESPR meets the critical need for more electrical power in California in an efficient, low impact manner.

2.3.1 Means by Which ESPR Minimizes Impacts and Maximizes Benefits to the Environment

ESPR has the following benefits or high-efficiency characteristics:

- ESPR utilizes an existing power plant site with new units replacing existing units.
- ESPR replaces aged, lower efficiency units with new, state-of-the-art, higher efficiency combined-cycle technology.
- ESPR uses existing offsite transmission facilities.
- ESPR uses existing natural gas supply pipelines.
- ESPR uses an existing seawater cooling system containing best available technology to meet stringent Clean Water Act requirements.
- ESPR reduces existing highway transport of ammonia by installing an ammonia pipeline and obtaining ammonia directly from the adjacent Chevron Refinery.
- ESPR increases megawatt production using essentially the same, low impact environmental envelope of the units to be replaced.
- ESPR will lower air emissions of the ESGS on a per megawatt basis.

2.3.2 Means by Which ESPR Facilitates Timely Analysis and Decision

The ESPR team has striven to provide an AFC document that facilitates CEC, other agency, and public review. Among other aspects:

- ESPR contains prepared CEC data adequacy checklists with a section reference for each data adequacy requirement.
- The ESPR team has extensively met and conferred with key environmental agencies, organizations, and municipalities, as well as with the CEC staff. They include:
 - Los Angeles Regional Water Quality Control Board
 - California Coastal Commission
 - South Coast Air Quality Management District
 - California Department of Fish and Game
 - National Marine Fisheries Department
 - United States Fish and Wildlife Services
 - Southern California Edison
 - Southern California Gas
 - City of El Segundo
 - City of Manhattan Beach
 - Chevron El Segundo Refinery

This AFC reflects input from all these entities and others. Project design, information, and proposed mitigation reflects this input.

- ESPR provides a timely, decisive and positive resolution to the increasingly questionable reliability of the aging units 1 & 2 that provide important power to the Western Los Angeles Basin.
- ESPR includes stipulation to standard CEC conditions as articulated in the Mountain View Power Plant AFC (00-AFC-002).
- ESPR includes carefully thought out, comprehensive additional mitigation or compliance commitments and proposed enhancements.

2.3.3 Critical Issues or Decisions for ESPR

ESPR looks forward to addressing the following key issues or decisions with the Commission and staff and with all other interested agencies, cities, and community members.

- Establishing a responsive and aggressive construction schedule

- Completing the air permit analysis in a timely manner
- Affirmation of the low-impact, efficient design and character of ESPR.